

DOCKET NO.: HENK-0060/H4714

PATENT

Application No.: 10/774,018

Preliminary Amendment - First Action Not Yet Received

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. - 46. (Canceled)

47. (New) An agent for cleaning, comprising an amylolytic hybrid protein whose amino acid sequence comprises in each case in a homologous position at least one partial sequence encompassing more than one amino acid, which partial sequence is identical to that of *Bacillus amyloliquefaciens*  $\alpha$ -amylase, and comprises in each case in a homologous position at least one partial sequence encompassing more than one amino acid, this partial sequence being identical to that of *Bacillus licheniformis*  $\alpha$ -amylase, with the points of fusion of the hybrid amylase being located at one or more of positions 17, 34, 76, 108, 112, 142, 147, 149, 151, 163, 174, 179, 185, 191, 198, 207, 231, 234, 244, 256, 263, 276, 431, 84, 99, 429, 201, 19, 433 and 153 according to the numbering of SEQ ID No. 4.

48. (New) The agent of claim 47, wherein the hybrid amylases are AL17, AL108, AL142, AL147, AL149, AL151, AL163, AL174, AL179, AL185, AL191, AL198, AL207, AL231, AL234, AL244, AL263, AL276, AL431, ALA17-151, ALA76-151, ALA99-429, ALA112-151, ALA112-201, LA19 or LA431.

49. (New) The agent of claim 47, wherein hybrid amylases are AL34 (SEQ ID No. 6), AL256 (SEQ ID No. 12), ALA34-84 (SEQ ID No. 14) or LAL19-153 (SEQ ID No. 18).

50. (New) The agent of claim 47, wherein the hybrid proteins are those which are at least 98%, 99%, or 100%, identical to that of AL76 (SEQ ID No. 8).

51. (New) The agent of claim 47, wherein the hybrid proteins are those which are at least 98%, 99%, or 100%, identical to that of AL112 (SEQ ID No. 10).

52. (New) The agent of claim 47, wherein the hybrid proteins are those which are at least 98%, 99%, or 100%, identical to that of LAL19-433 (SEQ ID No. 16).

53. (New) An agent for cleaning, comprising a hybrid amylase of claim 47, obtained by deletion of no more than 5 contiguous amino acids, no more than 3 contiguous amino acids, or only one amino acid, or by substitution of an amino acid.

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54. (New) An agent for cleaning, comprising an amylolytic protein obtained by insertion mutation or an amylolytic chimeric protein which is identical at least in one part of a hybrid amylase of claim 47, which part confers amylolytic activity.
55. (New) An agent for cleaning, wherein it comprises an amylolytic derivative of a hybrid amylase of claim 47.
56. (New) The agent of claim 47, wherein it comprises from 0.000001 percent by weight to 5% by weight, or 0.00001 to 3% by weight, of the amylolytic protein or derivative.
57. (New) The agent of claim 47, further comprising one or more other amylolytic proteins, in particular  $\alpha$ -amylases.
58. (New) The agent of claim 47, further comprising other enzymes, in particular one or more proteases, lipases,  $\beta$ -glucanases or cellulases.
59. (New) The agent of claim 47, wherein the agent comprises more than one phase.
60. (New) The agent of claim 47, wherein it is solid and at least two different solid components, powders, granules, or extrudates, are present in an overall loose mixture.
61. (New) The agent of claim 47, wherein at least two solid phases bonded together are present, in particular after a joint compacting step.
62. (New) The agent of claim 59, wherein at least one of the phases comprises an amylase-sensitive material, starch, or is, at least partly, surrounded by or coated with said material.
63. (New) The agent of claim 47, wherein it is overall in liquid, gel, or paste form and that the protein present or at least one of the enzymes present or at least one of the other components present is, either individually or together with other components, in encapsulated form, microcapsules, or microcapsules made of an amylase-sensitive material.
64. (New) The agent of claim 47, wherein any of the other components of the agent modifies, in particular stabilizes, the amylolytic activity or increases the contribution thereof to the washing or cleaning performance of the agent.

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65. (New) A method for cleaning textiles or hard surfaces, wherein in at least one of the method steps an amylolytic protein or derivative of claim 47 becomes active.
66. (New) A method for cleaning textiles or hard surfaces, wherein in at least one of the method steps an agent of claim 47 is used.
67. (New) The method of claim 65, wherein the amylolytic protein or derivative is used in the method step in an amount of from 0.01 mg to 400 mg, 0.02 mg to 200 mg, or 0.02 to 100 mg, per application.
68. (New) The use of an amylolytic protein or derivative of claim 47 alone or together with at least one other cleaning-active ingredient or active ingredient supporting the cleaning action for cleaning textiles or hard surfaces.
69. (New) The use of an agent of claim 47 for cleaning textiles or hard surfaces.
70. (New) The use of claim 68, wherein per application, preferably per application in a dishwasher or a washing machine, 0.01 mg to 400 mg, 0.02 mg to 200 mg, or 0.02 to 100 mg, of the amylolytic protein or derivative are used.
71. (New) The use of an amylolytic protein or derivative of claim 47 alone or together with at least one other cleaning-active ingredient, or active ingredient supporting the cleaning action, in an agent for cleaning comprising more than one phase for activating its own or other phases.
72. (New) The use of an amylolytic protein or derivative of claim 47 alone or together with at least one other cleaning-active ingredient, or active ingredient supporting the cleaning action, in an agent for cleaning containing encapsulated ingredients for releasing the ingredients from the capsules.
73. (New) A method for improving the washing or cleaning performance of an agent for cleaning, wherein partial sequences of the  $\alpha$ -amylases from *Bacillus amyloliquefaciens* and *Bacillus licheniformis*, which in each case comprise at least more than one amino acid, are fused in each case in a homologous position to give an amylolytically active hybrid amylase and that said hybrid amylase is added to the agent, with the points of fusion of the hybrid

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amylase being located at one or more of positions 17, 34, 76, 108, 112, 142, 147, 149, 151, 163, 174, 179, 185, 191, 198, 207, 231, 234, 244, 256, 263, 276, 431, 84, 99, 429, 201, 19, 433 and 153 according to the numbering of SEQ ID No. 4.

74. (New) The method of claim 73, wherein the hybrid amylases obtained additionally receive one or more deletions of in each case no more than 5 contiguous amino acids, no more than 3 contiguous amino acids, or only one amino acid.

75. (New) The method of claim 73, wherein the hybrid amylases obtained additionally undergo an amino acid substitution in at least one position, or in the 1, 2 or 3 of positions 132, 320 and 412 according to the counting of SEQ ID No. 4.

76. (New) The method of claim 73, wherein the hybrid amylases obtained additionally obtain insertions or represent an amylolytic chimeric protein.

77. (New) The method of claim 73, wherein the hybrid amylases obtained are additionally derivatized.

78. (New) The method of claim 73, wherein the hybrid amylases are formed by using nucleic acids which have in the corresponding partial regions the nucleotide sequences indicated in SEQ ID No. 1 and SEQ ID No. 3 or nucleotide sequences synonymous thereto.